ABSTRACT OF THE DISCLOSURE

A reciprocating pump includes a drive section and a pump section. The drive section has a reciprocating coil assembly to which alternating polarity control signals are applied by a reciprocating circuit during operation. A permanent magnet structure of the drive section creates a magnetic flux field which interacts with an electromagnetic field produced during application of the control signals to the coil. Depending upon the polarity of the control signals applied to the coil, the coil is driven in one of two directions of movement. The reciprocating circuit employs a storage capacitor and several switches to capture the energy of the reciprocating coil as the pump is driven downwardly. The charge is recycled as the capacitor dissipates, thereby reversing the polarity of the current through the coil and driving the coil assembly upwardly to its initial position. A drive member transfers movement of the coil to a pump element which reciprocates with the coil to draw fluid into a pump chamber and expel the fluid during each pump cycle. The pump is particularly well suited to cyclic pumping applications, such as fuel injection systems for internal combustion engines.